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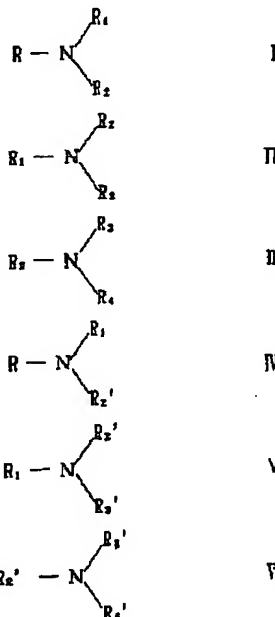
(54) PRODUCTION OF FATTY ACID DERIVATIVE

(57) Abstract:

PURPOSE: To obtain a fatty acid ester and/or a fatty acid amide having good smells and hues and useful as a base material for softeners with a compact facility inexpensively and in simple operations.

CONSTITUTION: When a compound having an amino group and/or a hydroxy group and having a boiling point higher than that of water, e.g. a compound of formula I, II or III (R is 8-22C alkyl or alkenyl; R_1 is 1-6C alkyl or alkenyl; R_2 - R_4 are 2-6C aminoalkyl, 2-6C hydroxyalkyl), is reacted with a fatty acid of formula R' -COOH (R' is 6-22C alkyl or alkenyl) to produce a compound of formula IV-VI (R_2' - R_4' are acylated alkyl or acylated hydroxyalkyl obtained by the condensation reaction of R_2 - R_4 with a fatty acid), steam is blown in the reaction system during the reaction to shorten the reaction time for the prevention of the thermal deterioration of the reaction product.

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CLAIMS

[Claim(s)]

[Claim 1] General formula which has an amino group or/and a hydroxyl group and is indicated to be a compound with the boiling point higher than water to the following (I) The manufacture approach of the fatty-acid derivative characterized by blowing steam into the system of reaction during a reaction in the approach of making the fatty acid shown reacting and manufacturing the ester and/or the amide which are a fatty-acid derivative.

R'COOH (I) (inside of a formula, R': they are the alkyl group of C6-C22 of a straight chain or branched chain, or an alkenyl radical.)

[Claim 2] the generation reaction of the ester and/or the amide which are a fatty-acid derivative -- the following general formula (II) (III), and a reaction with the fatty acid which has the amino group or/and hydroxyl group which are shown by (IV), and is indicated to be a compound with the boiling point higher than water by the above-mentioned general formula (I) -- it is -- general formula (V) of the following [product] (VI) -- and (VII) The manufacture approach of the fatty-acid derivative according to claim 1 which is the ester and/or the amide which are shown.

[Formula 1]



(Inside of a formula, R : They are the alkyl group of C8-C22 of a straight chain or branched chain or an alkenyl radical, the alkyl group of R1:C1-C6 or an alkenyl radical, the amino alkyl group of R2:C2-C6, or the hydroxyalkyl radical of C2-C6.)

[Formula 2]



(The inside of a formula, the alkyl group of R1 :C1-C6 or an alkenyl radical, R2, R3: They are respectively the same, the amino alkyl group of C2-C6 which may differ, or the hydroxyalkyl radical of C2-C6.)

[Formula 3]



(The inside of a formula, R2, R3, R4: They are respectively the same, the amino alkyl group of C2-C6 which may differ, or the hydroxyalkyl radical of C2-C6.)

[Formula 4]



(Inside of a formula, R : They are the alkyl group of C8-C22 of a straight chain or branched chain or an alkenyl

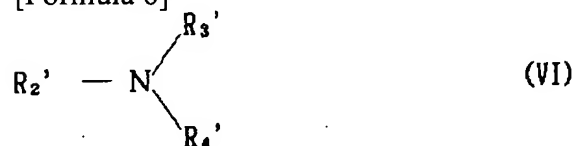
radical, the alkyl group of R1 :C1-C6 or an alkenyl radical, the amino alkyl group of R2':C2-C6, the acylation amino alkyl group obtained by the condensation reaction with the fatty acid shown by the hydroxyalkyl radical and formula (I) of C2-C6, or an acylation oxy-alkyl group.)

[Formula 5]



(The inside of a formula, the alkyl group of R1 :C1-C6 or an alkenyl radical, R2', R3' : They are respectively the same, the amino alkyl group of C2-C6 which may differ from each other or the acylation amino alkyl group obtained by the condensation reaction with the fatty acid shown by the hydroxyalkyl radical and formula (I) of C2-C6, or an acylation oxy-alkyl group.)

[Formula 6]



(the inside of a formula, R2', R3', and R4': -- they are respectively the same, the hydroxyalkyl radical of C2-C6 which may differ from each other or the acylation amino alkyl group obtained by the condensation reaction with the fatty acid shown by the hydroxyalkyl radical and formula (I) of C2-C6, or an acylation oxy-alkyl group.)

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the manufacture approach of the ester and/or the amide which are a fatty-acid derivative useful to a softening agent base material. Furthermore, it is related with the manufacture approach of obtaining a smell and the good softening agent base material of a hue, by carrying out the entrainment (steaming being called hereafter) of steam to a detail in a system during a reaction.

[0002]

[Description of the Prior Art] Although it is as a Prior art when decolorization and deodorization purification by the steam are performed to a product one by one after carrying out the esterification reaction of dimethylpolysiloxane diol and the fatty acid to JP,63-150288,A by manufacture of cosmetics, it is indicated that this performs purification after reaction termination of an esterification reaction. Moreover, adding and esterifying the methanol and sulfuric acid of the amount of specification in the remnant-in-a-still liquid which contains a methacrylic acid as a principal component in JP,63-198648,A Carry out steam distillation and the method of collecting methacrylic acids efficiently easily as a methyl methacrylate is indicated. Furthermore, although it is indicated that water or a steam is added, and gelation is reversed or delayed in case the esterification reaction of a polybasicity acid and the polyhydric alcohol is carried out to JP,53-13698,A in the process of alkyd resin No approaches of blowing a steam into the system of reaction during a reaction in these use a steam for purification of a reactant. Moreover, the method of removing a sink and an owner smell component as carrier gas is widely performed in nitrogen during the reaction.

[0003]

[Problem(s) to be Solved by the Invention] In esterification, performing after [a reaction] decolorizer processing and steam distillation is known as a means to acquire good esterification and/or the amidation resultant of a hue and a smell from the above thing, but By the esterification object, by adding a steam, hydrolysis took place and there were problems, like that there is a possibility that the quality as a reaction termination article may change, or excessive down stream processing called decolorization / deodorization processing is needed after a reaction process, and a hue worsens according to heat deterioration. Moreover, in the case of that the cost of nitrogen gas becomes high compared with steam, and the reaction in a reduced pressure system, although the approach of blowing nitrogen during a reaction was a noncondensing gas therefore, it had the fault from which an exhaust air facility becomes profound and expensive. This invention is made in order to solve such a trouble, and it aims at solving the above-mentioned trouble by performing during a reaction steaming which is deodorization processing.

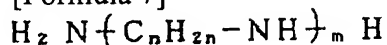
[0004]

[Means for Solving the Problem] Since this invention persons can shorten the time amount of down stream processing by performing steaming during esterification and/or an amidation reaction, in addition, processing cost is cheap, deodorization-on facility down stream processing can be skipped, and they inquire wholeheartedly paying attention to that heat deterioration decreases and the good thing of a hue can be expected, and becoming compact, and come to complete this invention. That is, this invention is a general formula (I) which has an amino group and/or a hydroxyl group and is indicated to be a compound with the boiling point higher than water to the following. It is related with the manufacture approach of the fatty-acid derivative characterized by blowing steam into the system of reaction during a reaction in the approach of making the fatty acid shown reacting and manufacturing the ester and/or the amide which are a fatty-acid derivative.

[0005] $R'COOH$ This invention is explained to a detail below (I) (inside of a formula, R' : they are the alkyl group of C6-C22 of a straight chain or branched chain, or an alkenyl radical.). In this invention, the following compounds are mentioned as a compound which has the amino group or/and hydroxyl group which are a reaction raw material. As a compound which has an amino group, they are the 1st class amine (the alkyl group or alkenyl radical of the straight chain of RNH_2 , R : C8 - C36, or branched chain), secondary amine (the alkyl group or alkenyl radical of $R-NH-R'$, R ,

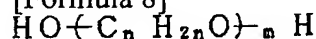
the straight chain of R':C8-C36, or branched chain), and polyamine [0006].

[Formula 7]



[0007] (They are the inside of a formula, the integer of n:2-10, and the integer of m:1-50.) etc. -- it is mentioned. As a compound which has a hydroxyl group, they are alcohol (ROH, R:C8 - C36) and a polyalkylene glycol [0008].

[Formula 8]



[0009] (-- they are the inside of a formula, the integer of n:2-10, and the integer of m:1-50.) -- amino alcohol -- [-- it is the integer of $HO C_n H_{2n} NH_2$, $2(HO C_n H_{2n}) NH$, $3(HO C_n H_{2n}) Ns$, and n:2-10.] ** is mentioned. As a compound which has an amino group or/and a hydroxyl group, the following general formula (II) and (III) the compound shown by (IV) are mentioned.

[0010]

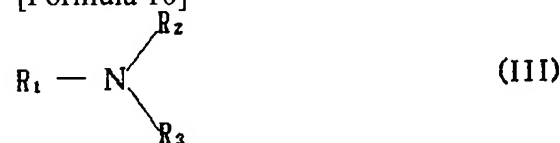
[Formula 9]



[0011] (Inside of a formula, R : They are the alkyl group of C8-C22 of a straight chain or branched chain or an alkenyl radical, the alkyl group of R1:C1-C6 or an alkenyl radical, the amino alkyl group of R2:C2-C6, or the hydroxyalkyl radical of C2-C6.)

[0012]

[Formula 10]



[0013] (The inside of a formula, the alkyl group of R1 :C1-C6 or an alkenyl radical, R2, R3: They are respectively the same, the amino alkyl group of C2-C6 which may differ, or the hydroxyalkyl radical of C2-C6.)

[0014]

[Formula 11]



[0015] (The inside of a formula, R2, R3, R4: They are respectively the same, the amino alkyl group of C2-C6 which may differ, or the hydroxyalkyl radical of C2-C6.) As a fatty acid which is another raw material, it is the following general formula (I). The compound expressed, for example, stearin acid, a palmitic acid, a myristic acid, a lauric acid, oleic acid, etc. are mentioned.

[0016] R'COOH In order to blow steam into the system of reaction during a reaction, as for the compound which has the amino group or/and hydroxyl group with which a reaction is presented, it is [in / (I) (inside / of a formula / R': they are alkyl group / of a straight chain or branched chain / of C6-C22 /, or alkenyl radical.) this invention] indispensable that the boiling point is higher than water. The compound which has the boiling point lower than the boiling point of water is not desirable in order to distill it out of the system of reaction with the steam blown into the system of reaction.

[0017] reaction temperature of esterification and/or amidation 100degree-C-300 ** -- desirable -- 100 degrees C - 200 degrees C. On the other hand, although reaction time will become short if 300 degree C is exceeded, the degradation rate of the hue by heat also becomes quick, and hue degradation is not avoided.

[0018] Although any of the range of the reduced pressure from ordinary pressure are sufficient as reaction pressure, since esterification and amidation are dehydration, the direction of a rate of reaction of reduced pressure improves, reaction time is more short, and there are also few amounts of steam and it ends. The total amount of the steam blown

into the system of reaction has desirable 0.01-10kg per total quantity of 1kg of the compound which has the amino group or/and hydroxyl group with which a reaction is presented, and a fatty acid, and its 0.05-5kg is still more desirable. It becomes [neither a rate of reaction nor reaction time improves further, and] waste of the amount of steam and is not desirable even if a hue and what has a good smell are not obtained as the total amount of steam is less than 0.01kg, and it exceeds 10kg on the other hand. Moreover, in this invention, instead of blowing steam into the system of reaction, the water of the specified quantity is taught to the system of reaction, or water is continuously supplied during a reaction, and even if it uses the steam generated within the system of reaction, the same effectiveness is acquired.

[0019]

[Example] Hereafter, although an example explains this invention, this invention is not restricted to these examples. It is [g / of stearin acid / example 1 stearyl amine 270g and / 285] after a temperature up to preparation and 150 degree C in 1l. 4 opening flask. The reaction was performed for 5 hours, blowing reduced pressure and steam into 200Torr by the amount of supply of 55 g/Hr. The hue of the acquired resultant and the smell were Gardner 2 and O, respectively, and the hue and its smell were good. In addition, the hue of a resultant was measured with the Gardner color comparison tube, and the smell performed organoleptics and evaluated them in the two following steps.
O : A smell is good.

x : A smell is bad.

[0020] The raw materials A and B shown in two to example 10 table 1 were taught to 1l. 4 opening flask, and it reacted by the reaction condition which showed temperature, a pressure, and time amount in Table 1. Each of hues of the acquired resultant and smells was Gardner 1-3 and O, respectively, and the hue and its smell were good.

[0021] It is [g / of stearin acid / stearyl amine 270g and / 285] after a temperature up to preparation and 150 degree C in 1l. 4 opening flask like example of comparison 1 example 1. Five time amount reactions were decompressed and carried out to 200Torr. The smell of the acquired resultant was x and the hue was Gardner 2. The evaluation result obtained in examples 1-10 and the example 1 of a comparison is shown in Table 1, 2, and 3.

[0022]

[Table 1]

表 1 - 1

		実施例 1	実施例 2	実施例 3	実施例 4
原 料 A		ステアリル アミン 270g	ジステアリル アミン 260g	1,5-ペンタン ジアミン 51g	1-テトラ デカノール 215g
原 料 B		ステアリン酸 285g	ステアリン酸 143g	ステアリン酸 285g	バルミチン酸 255g
反 応 条 件	反応温度〔℃〕	150	220	120	180
	反応圧力〔Torr〕	200	50	650	200
	スチーム量〔g/Hr〕	55	40	34	30
	反応時間〔Hr〕	5	5	5	8
評 価	色 相 (ガーダー)	2	3	1	2
	匂い	○	○	○	○

[0023]

[Table 2]

表 1-2

		実施例 5	実施例 6	実施例 7	実施例 8
原 料 A		1,4-ブタンジオール 90 g	2-アミノ-2-エチル-1,3-プロパンジオール 60 g	N-(2-ヒドロキシethyl)-N-ethyl-1,3-propanediamine 165 g	N-(2-ヒドロキシethyl)-N-ethyl-1,3-propanediamine 65 g
原 料 B		ラウリン酸 400 g	ラウリン酸 300 g	ステアリン酸 285 g	ステアリン酸 285 g
反応条件	反応温度 (°C)	180	140	180	180
	反応圧力 (Torr)	500	50	200	20
	スチーム量 (g/Hr)	61	36	78	35
	反応時間 (Hr)	8	10	10	5
評価	色 相 (ガードナー)	3 ○	2 ○	2 ○	1 ○

[0024]

[Table 3]

表 1-3

		実施例 9	実施例 10	比較例 1
原 料 A		N,N-bis(2-ヒドロキシethyl)stearaldiamine 180 g	N-ethyl-N-octyl-1,3-propanediamine 170 g	ステアリルアミン 270 g
原 料 B		ラウリン酸 300 g	オレイン酸 140 g	ステアリン酸 285 g
反応条件	反応温度 (°C)	200	180	150
	反応圧力 (Torr)	760	50	200
	スチーム量 (g/Hr)	48	30	—
	反応時間 (Hr)	10	5	5
評価	色 相 (ガードナー)	3 ○	2 ○	2 ×

[0025] The evaluation result of Tables 1-3 shows that the good ester and/or the good amide of a hue and a smell are obtained, if the manufacture approach by this invention is used.

[0026]

[Effect of the Invention] According to the manufacture approach of this invention, the ester and/or the amide which are a smell and the good fatty-acid derivative of a hue can be obtained with a compact facility by cheap and simple actuation.

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TECHNICAL FIELD

[Industrial Application] This invention relates to the manufacture approach of of the ester and/or the amide which are a fatty-acid derivative useful to a softening agent base material. Furthermore, it is related with the manufacture approach of obtaining a smell and the good softening agent base material of a hue, by carrying out the entrainment (steaming being called hereafter) of steam to a detail in a system during a reaction.

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PRIOR ART

[Description of the Prior Art] Although it is as a Prior art when decolorization and deodorization purification by the steam are performed to a product one by one after carrying out the esterification reaction of dimethylpolysiloxane diol and the fatty acid to JP,63-150288,A by manufacture of cosmetics, it is indicated that this performs purification after reaction termination of an esterification reaction. Moreover, adding and esterifying the methanol and sulfuric acid of the amount of specification in the remnant-in-a-still liquid which contains a methacrylic acid as a principal component in JP,63-198648,A Carry out steam distillation and the method of collecting methacrylic acids efficiently easily as a methyl methacrylate is indicated. Furthermore, although it is indicated that water or a steam is added, and gelation is reversed or delayed in case the esterification reaction of a polybasicity acid and the polyhydric alcohol is carried out to JP,53-13698,A in the process of alkyd resin No approaches of blowing a steam into the system of reaction during a reaction in these use a steam for purification of a reactant. Moreover, the method of removing a sink and an owner smell component as carrier gas is widely performed in nitrogen during the reaction.

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EFFECT OF THE INVENTION

[Effect of the Invention] According to the manufacture approach of this invention, the ester and/or the amide which are a smell and the good fatty-acid derivative of a hue can be obtained with a compact facility by cheap and simple actuation.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] In esterification, performing after [a reaction] decolorizer processing and steam distillation is known as a means to acquire good esterification and/or the amidation resultant of a hue and a smell from the above thing, but By the esterification object, by adding a steam, hydrolysis took place and there were problems, like that there is a possibility that the quality as a reaction termination article may change, or excessive down stream processing called decolorization / deodorization processing is needed after a reaction process, and a hue worsens according to heat deterioration. Moreover, in the case of that the cost of nitrogen gas becomes high compared with steam, and the reaction in a reduced pressure system, although the approach of blowing nitrogen during a reaction was a noncondensing gas therefore, it had the fault from which an exhaust air facility becomes profound and expensive. This invention is made in order to solve such a trouble, and it aims at solving the above-mentioned trouble by performing during a reaction steaming which is deodorization processing.

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MEANS

[Means for Solving the Problem] Since this invention persons can shorten the time amount of down stream processing by performing steaming during esterification and/or an amidation reaction, in addition, processing cost is cheap, deodorization-on facility down stream processing can be skipped, and they inquire wholeheartedly paying attention to that heat deterioration decreases and the good thing of a hue can be expected, and becoming compact, and come to complete this invention. That is, this invention is a general formula (I) which has an amino group and/or a hydroxyl group and is indicated to be a compound with the boiling point higher than water to the following. It is related with the manufacture approach of the fatty-acid derivative characterized by blowing steam into the system of reaction during a reaction in the approach of making the fatty acid shown reacting and manufacturing the ester and/or the amide which are a fatty-acid derivative.

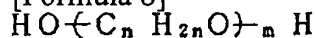
[0005] R'COOH This invention is explained to a detail below (I) (inside of a formula, R': they are the alkyl group of C6-C22 of a straight chain or branched chain, or an alkenyl radical.). In this invention, the following compounds are mentioned as a compound which has the amino group or/and hydroxyl group which are a reaction raw material. As a compound which has an amino group, they are the 1st class amine (the alkyl group or alkenyl radical of the straight chain of RNH₂, R: C8 - C36, or branched chain), secondary amine (the alkyl group or alkenyl radical of R-NH-R', R, the straight chain of R': C8-C36, or branched chain), and polyamine [0006].

[Formula 7]



[0007] (They are the inside of a formula, the integer of n: 2-10, and the integer of m: 1-50.) etc. -- it is mentioned. As a compound which has a hydroxyl group, they are alcohol (ROH, R: C8 - C36) and a polyalkylene glycol [0008].

[Formula 8]



[0009] (-- they are the inside of a formula, the integer of n: 2-10, and the integer of m: 1-50.) -- amino alcohol -- [-- it is the integer of HOCn H_{2n} NH₂, 2(HOCn H_{2n}) NH, 3 (HOCn H_{2n}) Ns, and n: 2-10.] ** is mentioned. As a compound which has an amino group or/and a hydroxyl group, the following general formula (II) and (III) the compound shown by (IV) are mentioned.

[0010]

[Formula 9]



[0011] (Inside of a formula, R : They are the alkyl group of C8-C22 of a straight chain or branched chain or an alkenyl radical, the alkyl group of R₁: C1-C6 or an alkenyl radical, the amino alkyl group of R₂: C2-C6, or the hydroxyalkyl radical of C2-C6.)

[0012]

[Formula 10]



[0013] (The inside of a formula, the alkyl group of R1 :C1-C6 or an alkenyl radical, R2, R3: They are respectively the same, the amino alkyl group of C2-C6 which may differ, or the hydroxyalkyl radical of C2-C6.)

[0014]

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[0016] R'COOH In order to blow steam into the system of reaction during a reaction, as for the compound which has the amino group or/and hydroxyl group with which a reaction is presented; it is [in / (I) (inside / of a formula / R': they are alkyl group / of a straight chain or branched chain / of C6-C22 / , or alkenyl radical.) this invention] indispensable that the boiling point is higher than water. The compound which has the boiling point lower than the boiling point of water is not desirable in order to distill it out of the system of reaction with the steam blown into the system of reaction.

[0017] reaction temperature of esterification and/or amidation 100degree-C-300 ** -- desirable -- 100 degrees C - 200 ** are good. A reaction rate is slow and productivity falls remarkably that reaction temperature is less than 100 degrees C. On the other hand, although reaction time will become short if 300 degree C is exceeded, the degradation rate of the hue by heat also becomes quick, and hue degradation is not avoided.

[0018] Although any of the range of the reduced pressure from ordinary pressure are sufficient as reaction pressure, since esterification and amidation are dehydration, the direction of a rate of reaction of reduced pressure improves, reaction time is more short, and there are also few amounts of steam and it ends. The total amount of the steam blown into the system of reaction has desirable 0.01-10kg per total quantity of 1kg of the compound which has the amino group or/and hydroxyl group with which a reaction is presented, and a fatty acid, and its 0.05-5kg is still more desirable. It becomes [neither a rate of reaction nor reaction time improves further, and] waste of the amount of steam and is not desirable even if a hue and what has a good smell are not obtained as the total amount of steam is less than 0.01kg, and it exceeds 10kg on the other hand. Moreover, in this invention, instead of blowing steam into the system of reaction, the water of the specified quantity is taught to the system of reaction, or water is continuously supplied during a reaction, and even if it uses the steam generated within the system of reaction, the same effectiveness is acquired.

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EXAMPLE

[Example] Hereafter, although an example explains this invention, this invention is not restricted to these examples. It is [g / of stearin acid / example 1 stearyl amine 270g and / 285] after a temperature up to preparation and 150 degree C in 1l. 4 opening flask. The reaction was performed for 5 hours, blowing reduced pressure and steam into 200Torr by the amount of supply of 55 g/Hr. The hue of the acquired resultant and the smell were Gardner 2 and O, respectively, and the hue and its smell were good. In addition, the hue of a resultant was measured with the Gardner color comparison tube, and the smell performed organoleptics and evaluated them in the two following steps.

O : A smell is good.

x : A smell is bad.

[0020] The raw materials A and B shown in two to example 10 table 1 were taught to 1l. 4 opening flask, and it reacted by the reaction condition which showed temperature, a pressure, and time amount in Table 1. Each of hues of the acquired resultant and smells was Gardner 1-3 and O, respectively, and the hue and its smell were good.

[0021] It is [g / of stearin acid / stearyl amine 270g and / 285] after a temperature up to preparation and 150 degree C in 1l. 4 opening flask like example of comparison 1 example 1. Five time amount reactions were decompressed and carried out to 200Torr. The smell of the acquired resultant was x and the hue was Gardner 2. The evaluation result obtained in examples 1-10 and the example 1 of a comparison is shown in Table 1, 2, and 3.

[0022]

[Table 1]

表 1 - 1

		実施例 1	実施例 2	実施例 3	実施例 4
原 料 A		ステアリル アミン 270 g	ジステアリル アミン 260 g	1,5-ペンタン ジアミン 51 g	1-テトラ デカノール 215 g
原 料 B		ステアリン酸 285 g	ステアリン酸 143 g	ステアリン酸 285 g	パルミチン酸 255 g
反 応 条 件	反応温度 (℃)	150	220	120	180
	反応圧力 [Torr]	200	50	650	200
	スチーム量 [g/Hr]	55	40	34	30
	反応時間 [Hr]	5	5	5	8
評 価	色 相 (ガーダー)	2 ○	3 ○	1 ○	2 ○

[0023]

[Table 2]

表 1-2

		実施例 5	実施例 6	実施例 7	実施例 8
原 料 A		1,4-ブタンジオール 90 g	2-アミノ-2-エチル-1,3-プロパンジオール 60 g	N-(2-ヒドロキシethyl)-N-メチルステアarylアミン 165 g	N-(2-ヒドロキシethyl)-N-メチル-1,3-プロパンジアミン 65 g
原 料 B		ラウリン酸 400 g	ラウリン酸 300 g	ステアリン酸 285 g	ステアリン酸 285 g
反応条件	反応温度 (°C)	180	140	180	180
	反応圧力 (Torr)	500	50	200	20
	スチーム量 (g/Hr)	61	36	78	35
	反応時間 (Hr)	8	10	10	5
評価	色 匂 相 (ガードナー)	3 ○	2 ○	2 ○	1 ○

[0024]

[Table 3]

表 1-3

		実施例 9	実施例 10	比較例 1
原 料 A		N,N-ビス(2-ヒドロキシethyl)ステアarylアミン 180 g	N-メチル-N-オレイル-1,3-プロパンジアミン 170 g	ステアarylアミン 270 g
原 料 B		ラウリン酸 300 g	オレイン酸 140 g	ステアリン酸 285 g
反応条件	反応温度 (°C)	200	180	150
	反応圧力 (Torr)	760	50	200
	スチーム量 (g/Hr)	48	30	—
	反応時間 (Hr)	10	5	5
評価	色 匂 相 (ガードナー)	3 ○	2 ○	2 ×

[0025] The evaluation result of Tables 1-3 shows that the good ester and/or the good amide of a hue and a smell are obtained, if the manufacture approach by this invention is used.

[0026]

[Translation done.]

* NOTICES *

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

CORRECTION OR AMENDMENT

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[Procedure amendment 1]

[Document to be Amended] Specification

[Item(s) to be Amended] Claim 2

[Method of Amendment] Modification

[Proposed Amendment]

[Claim 2] the generation reaction of the ester and/or the amide which are a fatty-acid derivative -- the following general formula (II) (III), And a compound with the boiling point have the amino group or/and hydroxyl group which are shown by (IV), and higher than water and the above-mentioned general formula (I) a reaction with the fatty acid shown -- it is -- general formula (V) of the following [product] (VI) -- and (VII) The manufacture approach of the fatty-acid derivative according to claim 1 which is the ester and/or the amide which are shown.

[Formula 1]



(Inside of a formula, R : The alkyl group or alkenyl radical of C8-C22 of a straight chain or branched chain)

R1: The alkyl group or alkenyl radical of C1-C6,

R2: They are the amino alkyl group of C2-C6, or the hydroxyalkyl radical of C2-C6.

[Formula 2]



(The inside of a formula, the alkyl group of R1 :C1-C6, or an alkenyl radical)

R2, R3: They are respectively the same, the amino alkyl group of C2-C6 which may differ, or the hydroxyalkyl radical of C2-C6.

[Formula 3]



(The inside of a formula, R2, R3, R4: They are respectively the same, the amino alkyl group of C2-C6 which may differ, or the hydroxyalkyl radical of C2-C6.)

[Formula 4]



(Inside of a formula, R : The alkyl group or alkenyl radical of C8-C22 of a straight chain or branched chain)

R1 : The alkyl group or alkenyl radical of C1-C6,

R2' : The amino alkyl group of C2-C6 or the hydroxyalkyl radical of C2-C6, and formula (I) It is the acylation amino alkyl group or acylation oxy-alkyl group obtained by the condensation reaction with the fatty acid shown.

[Formula 5]



(The inside of a formula, the alkyl group of R1 :C1-C6, or an alkenyl radical)

R2', R3' : Respectively the same, the amino alkyl group of C2-C6 which may differ or the hydroxyalkyl radical of C2-C6, and formula (I) It is the acylation amino alkyl group or acylation oxy-alkyl group obtained by the condensation reaction with the fatty acid shown.

[Formula 6]



(the inside of a formula, R2', R3', and R4': -- they are respectively the same, the hydroxyalkyl radical of C2-C6 which may differ from each other or the acylation amino alkyl group obtained by the condensation reaction with the fatty acid shown by the hydroxyalkyl radical and formula (I) of C2-C6, or an acylation oxy-alkyl group.)

[Translation done.]

Table 1-1

		Example of embodiment 1	Example of embodiment 2	Example of embodiment 3	Example of embodiment 4
Raw material A		Stearyl amine 270 g	Distearyl amine 260 g	1, 5-pentanediamine 51 g	1-tetradecanol 215 g
Raw material B		Stearic acid 285 g	Stearic acid 143 g	Stearic acid 285 g	Palmitic acid 255 g
Reaction conditions	Reaction temp (°C)	150	220	120	180
	Reaction pressure (Torr)	200	50	650	200
	Amount of steam (g/hour)	55	40	34	30
	Reaction time (hours)	5	5	5	8
Evaluation	Hue (Gardner) Slope	2 okay	3 okay	1 okay	2 okay

Table 1-2

		Example of embodiment 5	Example of embodiment 6	Example of embodiment 7	Example of embodiment 8
Raw material A		1, 4 Butane diol 90 g	2-amino-2-ethyl-1, 3-propane diol 60 g	N-(2-hydroxy ethyl)-N-methyl stearyl amine 165 g	N-(2-hydroxy ethyl)-N-methyl-1, 3-propylene diamine 65 g
Raw material B		Lauric acid 400 g	Lauric acid 300 g	Stearic acid 285 g	Stearic acid 285 g
Reaction conditions	Reaction temp (°C)	180	140	180	180
	Reaction pressure (Torr)	500	50	200	20
	Amount of steam (g/hour)	61	36	78	35
	Reaction time (hours)	8	10	10	5
Evaluation	Hue (Gardner) Slope	3 okay	2 okay	2 okay	1 okay

Table 1-3

		Example of embodiment 9	Example of embodiment 10	Comparative example 1
Raw material A		N,N-bis (2-hydroxy ethyl) stearyl amine 180 g	N-methyl-N- oleyl-1, 3-propylene diamine 170 g	Stearyl amine 270 g
Raw material B		Lauric acid 300 g	Oleic acid 140 g	Stearic acid 285 g
Reaction conditions	Reaction temp (°C)	200	180	150
	Reaction pressure (Torr)	760	50	200
	Amount of steam (g/hour)	48	30	--
	Reaction time (hours)	10	5	5
Evaluation	Hue (Gardner) Slope	3 okay	2 okay	2 not okay